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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,885	04/12/2004	Hitoshi Morishita	251406US2	2495

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EXAMINER

CHIEN, LUCY P

ART UNIT PAPER NUMBER

2871

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,885	MORISHITA ET AL.	
	Examiner	Art Unit	
	Lucy P. Chien	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 10/26/2005 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-10,12-19 are rejected under 35 U.S.C. 102(b) as being unpatentable over Ito et al (US 5748179).

Regarding Claim 1,

Ito et al discloses (Figure 15) lines connected to pixels formed on an insulating substrate (SUB1)

A lead line (d1) connected to at least one of the lines (PSV1) in a peripheral area of the insulating substrate (SUB1) different from a display area (Figure 22, (white box that the IC's encase)) comprising the pixels.

A line terminal (BUMP) connected to at least one of the lead line (d1) in a peripheral area of the insulating substrate different from a display area.

A transparent conductive film (d1) provided on the line terminal;

An anisotropic conductive material (ACF2) provided on the transparent conductive film (d1);

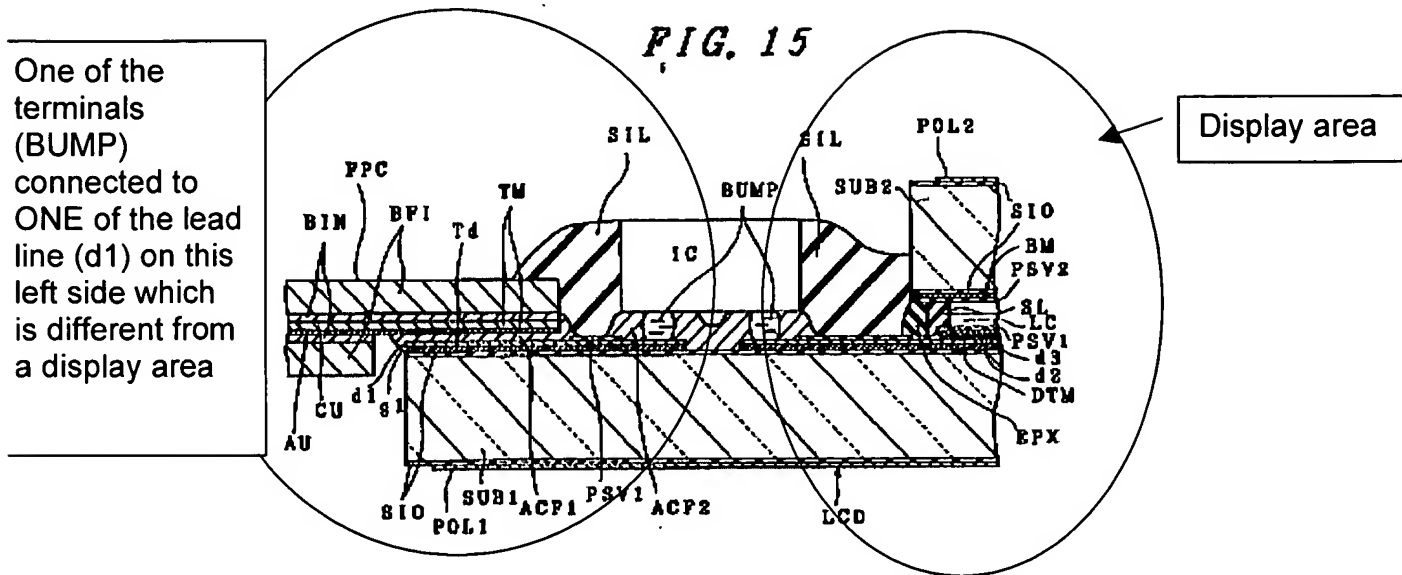
A driver circuit (IC) with a terminal (BUMP) connected to the line terminal (BUMP) through the transparent film (d1)

An external terminal (TM) formed on a periphery of the peripheral area of the insulating substrate (SUB1), to be connected to an external unit (FPC is located).

An external line (d2) connected to at least one of the external terminal (BUMP)

An external line terminal (BUMP) connected to at least one of the external line (d2) and connected directly to a terminal (BUMP) of the drive circuit by a anisotropic conductive material (ACF2).

Wherein a surface of the line terminal (BUMP) to be connected to the transparent conductive film is formed by high resistance conductive film, (d1, Column 4, Row 32-45) and a surface of the external line terminal to be connected to the terminal of the drive circuit by the anisotropic conductive material is formed by a low resistance conductive film.



Regarding Claim 12,

In addition to Ito et al as disclosed above, Ito also discloses forming a line terminal (BUMP) connected to at least one of the lead line (d1) in the peripheral area of the insulating substrate by depositing and patterning a high resistance conductive film: forming a transparent conductive film (d1) on the line terminal (BUMP): forming a anisotropic conductive film (ACF2) on the transparent conductive film (d1) (Column 2, Rows 42-29).

Regarding Claim 2,13,

In addition to Ito et al as disclosed above, Ito et al also discloses (Column 9, rows 22-29) the high resistance conductive film is made of Ti.(Column 9, rows 22-29) The low resistance conductive film is made of Aluminum. (Column 4, Rows 26-45). Also, it is a laminated film of the metal. (Column 17, rows 33-36)

Regarding Claim 3,14,

Art Unit: 2871

In addition to Ito et al as disclosed above, Ito et al also discloses (Column 9, rows 22-29) the high resistance conductive film is made of Ti.(Column 9, rows 22-29) The low resistance conductive film is made of Aluminum. (Column 4, Rows 26-45). Also, it is a laminated film of the metal. (Column 17, rows 29-46).

Regarding Claim 4,15,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 15) the external line (d2) and the external line terminal are formed by the same layer of a conductive film (d3) as a scan line for driving the pixels.

Regarding Claim 5,16,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 15) wherein the lead line (d1) and the line terminal (Td) are formed by the same layer of a conductive film (ACF2) as a signal line (g1) crossing a scan line for driving the pixels through an insulating film (g1) (Column 13, Row 4-6).

Regarding Claim 6,17,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 15) the transparent conductive film is formed by the same layer of a conductive film as a pixel electrode of the pixel.(Column 13, rows 9-15)

Regarding Claim 7,18,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 15) the terminal (BUMP) of the drive circuit (IC) and a terminal of the adjacent drive circuit (TM) are connected to each other in such a way that each of the terminals (BUMP) is directly connected to the conductive film (d1) by a conductive material (ACF2) in a near

Art Unit: 2871

proximity to each of sides of the drive circuits facing each other. (Figure 22, showing the adjacent IC's)

Regarding Claim 8,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 22) the terminal (Figure 15, (BUMP) of the drive circuit (IC) connected to the line terminal (d1) through the transparent conductive film (d1) is formed in a near proximity to a side of the drive circuit close to the display area (the white box that the IC's enclose).

Regarding Claim 9,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 22) the flexible board (ALMG) which has terminals are between the two driving circuits.

Regarding Claim 10,19,

In addition to Ito et al as disclosed above, Ito et al also discloses (Figure 15) the external terminal (Td,TM) is connected directly to an external unit by a conductive material (d1) formed in the same step as the conductive material used for connecting the terminals (BUMP) of the drive circuit (IC) mounted directly in the insulating substrate (SUB1) to the line terminal (d1) and to the external line terminal (Td,TM).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al (US 5748179) as applied above to claim 1 in view of Shiota et al (US 6111628).

Ito et al does not disclose the height difference of the transparent conductive film on the line terminal and the external line terminal formed above the insulating substrate and connected respectively to the terminals of the drive circuit.

Shiota et al discloses (Column 6, Row 21-29) that if the difference between the uneven heights of the bump electrodes 5 is more than $3\mu\text{m}$, the conductive particles dispersed in the anisotropic conductive adhesive may not be able to provide electrical connection between the bump electrodes 5 of the driver IC. It would be obvious to have equal heights of the transparent conductive film on the line terminal and the external line terminal formed above the insulating substrate and connected respectively to the terminals of the drive circuit to provide reliable connection between the IC and substrate.

It would have been obvious to one of ordinary skill in the art, at the time when the invention was made to modify Ito et al's high resistance conductive film to include Shiota et al's even heights motivated by the desire to provide reliable connection. (Shiota et al, Column 6, Row 21-29)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

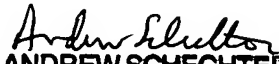
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy P. Chien whose telephone number is 571-272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucy Chien
Examiner
Art Unit 2871
LC


ANDREW SCHECHTER
PRIMARY EXAMINER